DOCUMENT RESUME

ED 461 605 SO 033 573

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TITLE	Eli Whitney's Patent for the Cotton Gin. The Constitution Community: Revolution and the New Nation (1754-1820s).
INSTITUTION	National Archives and Records Administration, Washington, DC.
PUB DATE	2001-00-00
NOTE	20p.; For related lesson plans, see SO 033 572-575 and SO 033 581-582.
AVAILABLE FROM	National Archives and Records Administration, 700 Pennsylvania Avenue, N.W., Washington, DC 20408. Tel: 866-325-7208 (Toll Free); e-mail: inquire@nara.gov. For full text: http://www.nara.gov/education/cc/main.html.
PUB TYPE	Guides - Classroom - Teacher (052)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Academic Standards; *Agricultural Machinery; *Government Role; *Inventions; Learning Activities; *Patents; Primary Sources; Secondary Education; Social Studies; *United States History
IDENTIFIERS	Congress; *Cotton Gin; National Civics and Government Standards; National History Standards; Whitney (Eli)

ABSTRACT

This lesson focuses on the power of the U.S. Congress to pass laws related to issuing patents. Using Eli Whitney's 1812 Congressional petition to extend the patent on his cotton gin as an example, the lesson correlates to the National History Standards and the National Standards for Civics and Government. It contains two primary source documents, the petition, and Whitney's drawing to accompany his original patent awarded in 1794. The lesson provides historical background by telling Eli Whitney's story and discussing his invention and its effects in the South. It lists four resources for further reading and provides sample written document analysis worksheet. The unit suggests teaching activities for document analysis, for creative writing, for debate, for role play, and for relating the past to the present. (BT)

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THE CONSTITUTION COMMUNITY

Revolution and the New Nation (1754-1820s)

Eli Whitney's Patent for the Cotton Gin

By Joan Brodsky Schur

SO 033 573

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The Constitution Community is a partnership between classroom teachers and education specialists from the National Archives and Records Administration. We are developing lessons and activities that address constitutional issues, correlate to national academic standards, and encourage the analysis of primary source documents. The lessons that have been developed are arranged according to historical era.

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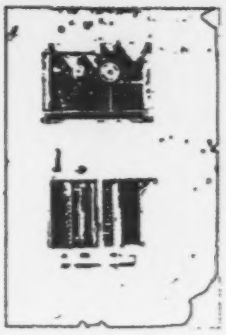

Eli Whitney's Patent for the Cotton Gin

Constitutional Connection

This lesson relates to the power of Congress to pass laws related to the granting of patents (Article I, Section 8, Clause 8).

This lesson correlates to the National History Standards.

Era 4 -Expansion and Reform (1801-1861)

- **Standard 2D** -Demonstrate understanding of the rapid growth of the "peculiar institution" after 1800 and the varied experience of African Americans under slavery.

This lesson correlates to the National Standards for Civics and Government.

Standard V. B.3. -Evaluate, take and defend positions on issues regarding economic rights.

Cross-curricular Connections

Share this exercise with your colleagues in history, government, language arts, and science.

List of Documents

1. Eli Whitney's petition to extend the patent on his cotton gin submitted to Congress in 1812. page1 page 2 page 3 page 4 page 5 page 6 page 7 page 8

2. Eli Whitney's drawing to accompany his original patent of the cotton gin awarded in 1794. In 1836 a fire in the Patent Office destroyed the original. This copy was made by the Patent Office in 1845.

Historical Background

Eli Whitney and the Need for an Invention

As Eli Whitney left New England and headed South in 1792, he had no idea that within the next seven months he would invent a machine that would profoundly alter the course of American history. A recent graduate of Yale, Whitney had given some thought to becoming a lawyer. But, like many college graduates of today, he had debts to repay first and needed a job. Reluctantly, he left his native Massachusetts to assume the position of private tutor on a plantation in Georgia.

There Whitney quickly learned that Southern planters were in desperate need of a way to make the growing of cotton profitable. Long-staple cotton, which was easy to separate from its seeds, could be grown only along the coast. The one variety that grew inland had sticky green seeds that were time-consuming to pick out of the fluffy white cotton bolls. Whitney was encouraged to find a solution to this problem by his employer, Catherine Greene, whose support, both moral and financial were critical to this effort. At stake was the success of cotton planting throughout the South, especially important at a time when tobacco was declining in profit due to over-supply and soil exhaustion.

Whitney knew that if he could invent such a machine, he could apply to the federal government for a patent. If granted, he would have exclusive rights to his invention for 14 years (today it is 20 years), and he could hope to reap a handsome profit from it.

The Constitution and Patent Law

In Article I, Section 8, Clause 8 , the Constitution empowers Congress "To promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries." Patent law must carefully balance the rights of the inventor to profit from his or her invention (through the grant of a temporary monopoly) against the needs of society at large to benefit from new ideas.

The patent bill of 1790 enabled the government to patent "any useful art, manufacture, engine, machine, or device, or any instrument thereon not before known or used." The patent act of 1793 gave the secretary of state the power to issue a patent to anyone who presented working drawings, a written description, a model, and paid an application fee. Over time the requirements and procedures have changed. Today the U.S. Patent and Trademark Office is under the auspices of the Commerce Department.

Eli Whitney Patents His Cotton Gin

In hopes of making a patentable machine, Whitney put aside his plans to study law and instead tinkered throughout the winter and spring in a secret workshop provided by Catherine Greene. Within months he created the cotton gin. A small gin could be hand-cranked; larger versions could be harnessed to a horse or driven by water power. "One man and a horse will do more than fifty men with the old machines," wrote Whitney to

his father. . . . "Tis generally said by those who know anything about it, that I shall make a Fortune by it."

But patenting an invention and making a profit from it are two different things. After considering possible options, Whitney and his business partner, Phineas Miller, opted to produce as many gins as possible, install them throughout Georgia and the South, and charge farmers a fee for doing the ginning for them. Their charge was two-fifths of the profit -- paid to them in cotton itself.

And here, all their troubles began. Farmers throughout Georgia resented having to go to Whitney's gins where they had to pay what they regarded as an exorbitant tax. Instead planters began making their own versions of Whitney's gin and claiming they were "new" inventions. Miller brought costly suits against the owners of these pirated versions but because of a loophole in the wording of the 1793 patent act, they were unable to win any suits until 1800, when the law was changed.

Struggling to make a profit and mired in legal battles, the partners finally agreed to license gins at a reasonable price. In 1802 South Carolina agreed to purchase Whitney's patent right for $50,000 but delayed in paying it. The partners also arranged to sell the patent rights to North Carolina and Tennessee. By the time even the Georgia courts recognized the wrongs done to Whitney, only one year of his patent remained. In 1808 and again in 1812 he humbly petitioned Congress for a renewal of his patent.

The Effects of the Cotton Gin

After the invention of the cotton gin, the yield of raw cotton doubled each decade after 1800. Demand was fueled by other inventions of the Industrial Revolution, such as the machines to spin and weave it and the steamboat to transport it. By midcentury America was growing three-quarters of the world's supply of cotton, most of it shipped to England or New England where it was manufactured into cloth. During this time tobacco fell in value, rice exports at best stayed steady, and sugar began to thrive, but only in Louisiana. At midcentury the South provided three-fifths of America's exports -- most of it in cotton.

However, like many inventors, Whitney (who died in 1825) could not have foreseen the ways in which his invention would change society for the worse. The most significant of these was the growth of slavery. While it was true that the cotton gin reduced the labor of removing seeds, it did not reduce the need for slaves to grow and pick the cotton. In fact, the opposite occurred. Cotton growing became so profitable for the planters that it greatly increased their demand for both land and slave labor. In 1790 there were six slave states; in 1860 there were 15. From 1790 until Congress banned the importation of slaves from Africa in 1808, Southerners imported 80,000 Africans. By 1860 approximately one in three Southerners was a slave.

Because of the cotton gin, slaves now labored on ever-larger plantations where work was more regimented and relentless. As large plantations spread into the Southwest, the price of slaves and land inhibited the growth of cities and industries. In the 1850s seven-

eighths of all immigrants settled in the North, where they found 72% of the nation's manufacturing capacity. The growth of the "peculiar institution" was affecting many aspects of Southern life.

Epilogue

While Eli Whitney is best remembered as the inventor of the cotton gin, it is often forgotten that he was also the father of the mass production method. In 1798 he figured out how to manufacture muskets by machine so that the parts were interchangeable. It was as a manufacturer of muskets that Whitney finally became rich. If his genius led King Cotton to triumph in the South, it also created the technology with which the North won the Civil War.

For Further Reading

Caney, Steven. *Steven Caney's Invention Book* . New York: Workman Publishers, 1985. (Interesting case histories.)

Green, Constance M. *Eli Whitney and the Birth of American Technology* . Reading, MA: Addison Wesley Educational Publishers, 1965. (Still available in paper.)

Mirsky, Jeannette and Allan Nevins. *The World of Eli Whitney* . New York: Macmillan Co., 1952.

Murphy, Jim. *Weird and Wacky Inventions* . New York: Crown Publishers, 1978. (Includes drawings of unusual inventions submitted to the Patent Office with clues to aid the reader in guessing the invention.)

Teaching Activities

Document Analysis

1. Ask students to look carefully at the patent drawing of the cotton gin. Ask them to read the following description and identify the parts of the cotton gin mentioned in the quote:

> "The cotton gin cranked cotton through rollers with teeth made of wire. The wire teeth tore the green seeds from the cotton. Iron slits let the cotton pass through, but not the seeds. A second rotating cylinder of bristles removed the seedless cotton from the wires. Through a simple arrangement of belts, the same crank turned both the cylinder with wires and another smaller one with bristles."

2. Direct students to analyze Whitney's petition and complete the Written Document Analysis Worksheet . (Students may be surprised to find that Whitney's petition was handwritten. Remind them that the typewriter was not invented until the 1880s.) Lead a class discussion using the following questions: Why was the petition addressed to the Senate and the House? What is a

memorialist? Why did Whitney write this in the third person? What promise does he think was made to him by the government in the patent acts it passed under Article I, Section 8, Clause 8? Why does he feel the government has not fulfilled its promise to him? Are you moved by his plight? Why or why not? Why did Whitney leave out all reference to the growth of slavery in his petition?

3. Because Whitney wrote the argument on his own behalf, the claims he made must be evaluated with caution. Whitney argued that the cotton gin proved to be of major importance to America. Elicit from students the statements Whitney made to support this claim and write them on the chalkboard. Then ask students to compare his claims to the facts presented in the Historical Background section. Ask the students whether they think he exaggerated the cotton gin's importance.

Creative Writing

4. Because slaves were forbidden by law to learn to read or write, we have few written accounts of their lives. However, slaves did sing songs that powerfully expressed their experiences and later became the basis for what we now call the Blues. Direct students to compose a "Cotton Gin Blues" using the call and response form in which the first line is "called" and repeated in the "response" -- AAB, CCD, EEF, etc. The "Saint Louis Blues" is a good example. Alternatively, ask students to write an interview with a slave on a cotton plantation. Solomon Northup was a New Yorker and a freeman when he was kidnapped and sold as a slave in 1841. His description of the time he spent on a cotton plantation in Louisiana will help students realize the impact made by the cotton gin on the daily lives of slaves:

"The hands are required to be in the cotton field as soon as it is light in the morning, and, with the exception of ten or fifteen minutes, which is given them at noon to swallow their allowance of cold bacon, they are not permitted to be a moment idle until it is too dark to see, and when the moon is full, they often times labor till the middle of the night. They do not dare to stop even at dinner time, nor return to the quarters, however late it be until the order to halt is given by the driver. The day's work over in the field, the baskets are "toted," or in other words, carried to the gin-house, where the cotton is weighed. No matter how fatigued and weary he may be -- no matter how much he longs for sleep and rest -- a slave never approaches the gin-house with his basket of cotton but with fear. If it falls short in weight -- if he has not performed the full task appointed of him, he knows that he must suffer. And if he has exceeded it by ten or twenty pounds, in all probability his master will measure the next day's task accordingly. So, whether he has too little or too much, his approach to the gin-house is always with fear and trembling."

Debate

5. Direct students to read the relevant passages of the following charters: Thomas Jefferson's original draft of the Declaration of Independence, which contains a clause condemning the slave trade; The Northwest Ordinance of 1787, which excluded slavery from the Northwest Territory; and Article I, Section 9, Clause 1 of the Constitution, which empowers Congress to end the importation of "such persons" after the year 1808. Next, ask students to research the growth of slavery and the market value of cotton following the invention of the cotton gin. Then conduct a class debate on the following statement: Resolved, that without the invention of the cotton gin, slavery would have slowly died out in America.

Role Play

6. Eli Whitney did not win the right to renew his patent, but students will learn a great deal about the patent clause in the Constitution by role-playing his hearing in Congress. After reading the Historical Background section and the Purpose of Patents article , divide students into three teams: Whitney and his lawyers, Southern planters and their lawyers, and congressmen. Set up the room with Whitney and his lawyers on one side, the Southern planters and their lawyers on the other, and the panel of congressmen seated in a row at the front of the room. Begin the hearing by allowing Whitney to state his claim before the congressional panel. Next, allow the Southern planters to state their claims. Finally, allow the members of Congress to ask questions of both sides.

Note: Whitney and his lawyers can argue that the flouting of Whitney's rights by the planters, his legal costs, and the insufficient amounts the planters finally paid relative to how much they profited to prove that his patent should be renewed. "An invention can be so valuable as to be worthless to the inventor," wrote a bitter Whitney. Such outcomes will discourage other inventors whereas the Constitution intended to encourage them. The Southern planters and their lawyers can argue that the planters have already paid Whitney enough through the various legal suits he won and his agreement with the state legislatures. They can try to show that Whitney & Miller, in originally refusing to sell them rights to build their own gins, were trying to set up a monopoly, which would have strangled the fledgling cotton industry. Whitney had his chance to profit from his first patent; it is in the financial well-being of the whole country not to further Whitney's goal to monopolize his invention. The Constitution intended the well-being of the nation to take precedence over that of the individual inventor. Congressmen can pose questions and eventually vote for or against the renewal of Whitney's patent.

Relating the Past to the Present

7. Eli Whitney invented the cotton gin in 1793 as the 18th century turned into the 19th century. As we approach the 21st century, ask students to consider what types of inventions will most affect their lives. The *New York Times* has a column

every Monday in its "Business Day" section describing recently granted patents. Clip this column and discuss with students how some of the new patents may affect their inventors, the companies that will try to market them, and their own lives. Ask students which new inventions may have the potential to harm as well as help us. (Consider inventions related to genetic engineering , nuclear devises, and computer technology, for example.) The patents listed in this column are identified by patent number and copies are available from the Patent and Trademark Office , Washington, DC, 20231.

The documents included in this project are from Record Group 233, Records of the United States House of Representatives, and Record Group 241, Records of the Patent and Trademark Office. They are available online through the National Archives Information Locator (NAIL) database, control numbers NWL-233-Petition-12AF112-1 and NWDNC-241-PATENTRES-72X. NAIL is a searchable database that contains information about a wide variety of NARA holdings across the country. You can use NAIL to search record descriptions by keywords or topics and retrieve digital copies of selected textual documents, photographs, maps, and sound recordings related to thousands of topics.

This article was written by Joan Brodsky Schur, a teacher at Village Community School in New York, NY.

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To the Honourable the Senate and House of Representatives in Congress assembled.

The Memorial of Eli Whitney

Respectfully sheweth,

That your memorialist is the inventor of the machine with which the principal part of the Cotton raised in the United States is cleaned & prepared for market. That being in the State of Georgia in the year 1793, he was informed by the planters, that the agriculture of that State was unproductive, especially in the interior, where it produced little or nothing for exportation. That attempts had been made to cultivate cotton; but that the prospect of success was not flattering. That of the various kinds which had been tried in the interior none of them were productive, except the Green seed Cotton, which was so extremely dif-

Document 1: Page 1

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difficult to clean, as to discourage all further attempts to raise it. — That it was generally believed this species of cotton might be cultivated with great advantage, if any cheap and expeditious method of separating it from its seeds could be discovered — and that such a discovery would be highly beneficial both to the public and the inventor. —

These remarks first drew the attention of your memorialist to this subject and after considerable reflection he became impressed with a belief that this desirable object might be accomplished —

At the same time he could not but entertain doubts, whether he ought to suffer any prospect of so precarious a nature, as that which depends upon the success of new projects, to divert his attention from a regular profession —

About this time Congress passed a New Patent Law, which your memorialist

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considered as a premium offered to any citizen who should devote his attention to useful improvements and as a pledge from his country that in case he should be successful, his rights and his property would be protected. ——

Under these impressions your memorialist relinquished every other object of pursuit and devoted his utmost exertions to reduce his invention, which, as yet was little more than a floating image of the mind, to practical use — and fortunately for the Country he succeeded in giving form to the conceptions of his imagination and to matter a new mode of existance — and the result of this new modification of matter, was every thing that could be wished. ——

After reducing his theory to practice by effectual & successful experiments your memorialist took out a Patent. ——

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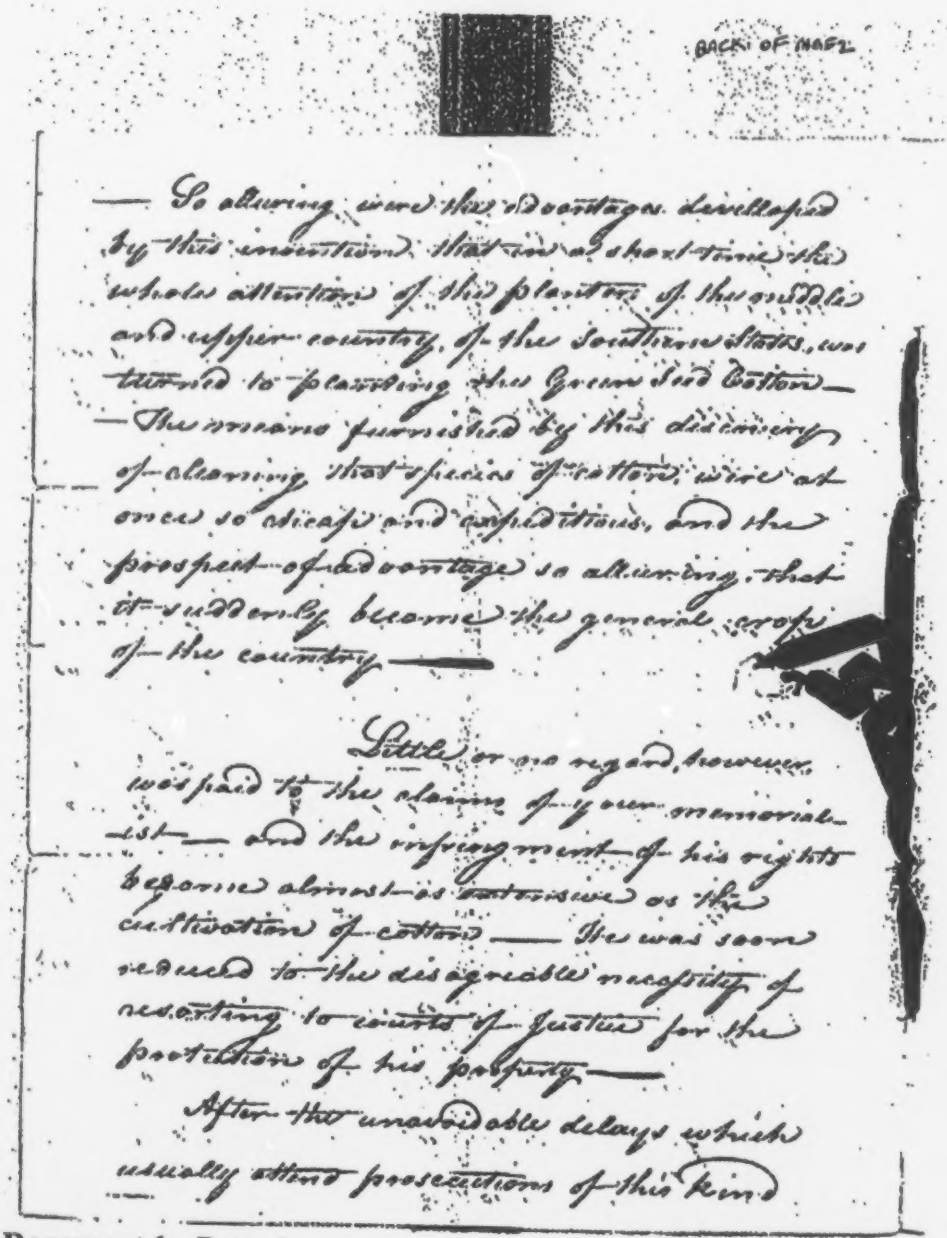

BACK OF MAP.

— So alluring were the advantages developed by this invention that in a short time the whole attention of the planters of the middle and upper country of the Southern States was turned to planting the Green Seed Cotton — The means furnished by this discovery of cleaning that species of cotton were at once so obvious and unquestionable, and the prospect of advantage so alluring, that it suddenly became the general crop of the country —

Little or no regard however was paid to the claims of your memorialist — and the infringement of his rights became almost as extensive as the cultivation of cotton — He was soon reduced to the disagreable necessity of resorting to courts of Justice for the protection of his property —

After the unavoidable delays which usually attend prosecutions of this kind

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and a laboured trial, it was discovered that the Defendants had only used — and that as the Law then stood they must both make and use the Machine, or they could not be liable — the Court decided that it was a fatal, though inadvertant defect in the Law and gave judgment for the Defendants. ——

It was not untill the year 1800. that this defect in the Law was amended. —— Immediately after the ammendment of the Law your memorialist commenced a number of suits; but so effectual were the means of procrastination and delay, resorted to, by the Defendants, that he was unable to obtain any decision on the merits of his claim untile the year 1807 — not untile he had been eleven years in the Law & thirteen years of his patent term had expired. —

A compromise has been made with several of the States to which your memorialist has assigned his right and relinquished all further claims; but from the state in

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which he first made and introduced his invention, and which has derived the most signal benefits from it, he has realized nothing — and from any one state has he received the amount of half a Cent p^r pound, on the cotton cleaned with his machine, within that State, in one year —

Estimating the value of the labour of one man at twenty cents p^r Day, the whole amount which has been realized by your memorialist for his invention, is not equal to the value of the labour saved in one hour by his machines, now in use, in the U States —

Permit your memorialist further to remark that by far the greatest part of the cotton raised in the United States has been & must of necessity continue to be the Green seed — That before the invention of your memorialist the value of this species of cotton after it was cleaned, was not equal to the expense of cleaning it — That since the cultivation of this species has been a great —

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source of wealth to this community & of riches to thousands of her citizens — That as a labour-saveing machine it is an invention which enables a man to perform in a given time that which would require a thousand men without its aid to perform in the same time — in short that it is suitable to the whole family of mankind the means of procuring the article of cotton, that important raw material which constitutes a great part of their clothing at a much cheaper rate —

Your memorialist begs leave further to state that a confident expectation that his case would be embraced in the general law which Congress has for several years had under consideration has prevented his making an earlier application. — That the expences incurred by him in making and introducing this useful improvement and establishing his claim to its invention, have absorbed a great proportion of what he has received from those states with which he has made a compromise —

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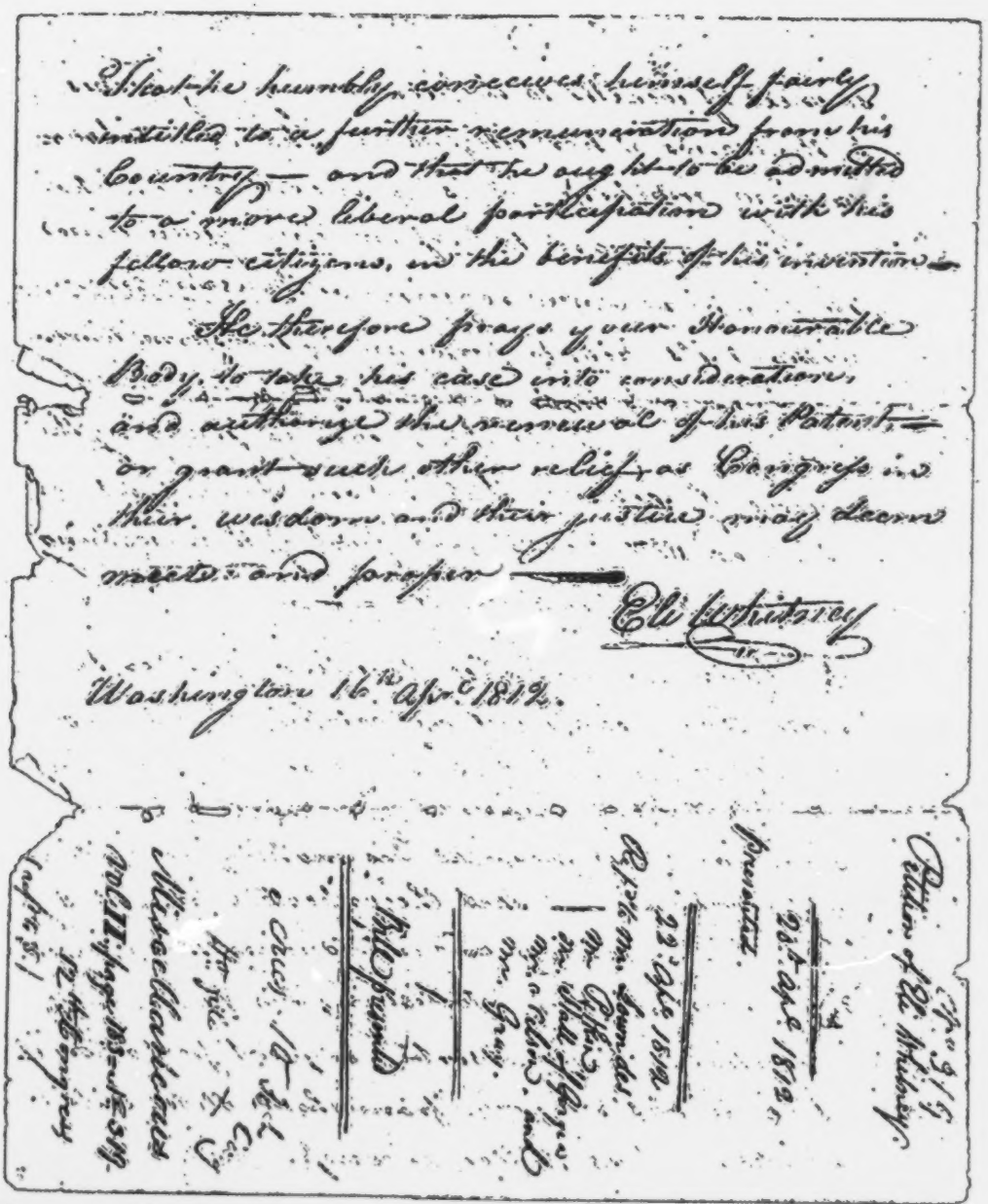

That he humbly conceives himself fairly entitled to a further remuneration from his Country — and that he ought to be admitted to a more liberal participation with his fellow citizens, in the benefits of his invention.

He therefore prays your Honourable Body to take his case into consideration, and authorize the renewal of his Patent, or grant such other relief as Congress in their wisdom and their justice may deem meet: and as in duty bound will pray.

Eli Whitney

Washington 16th Apr. 1812.

Petition of Eli Whitney.

Referred to Mr. Lowndes

Report

Bill reported

Miscellaneous

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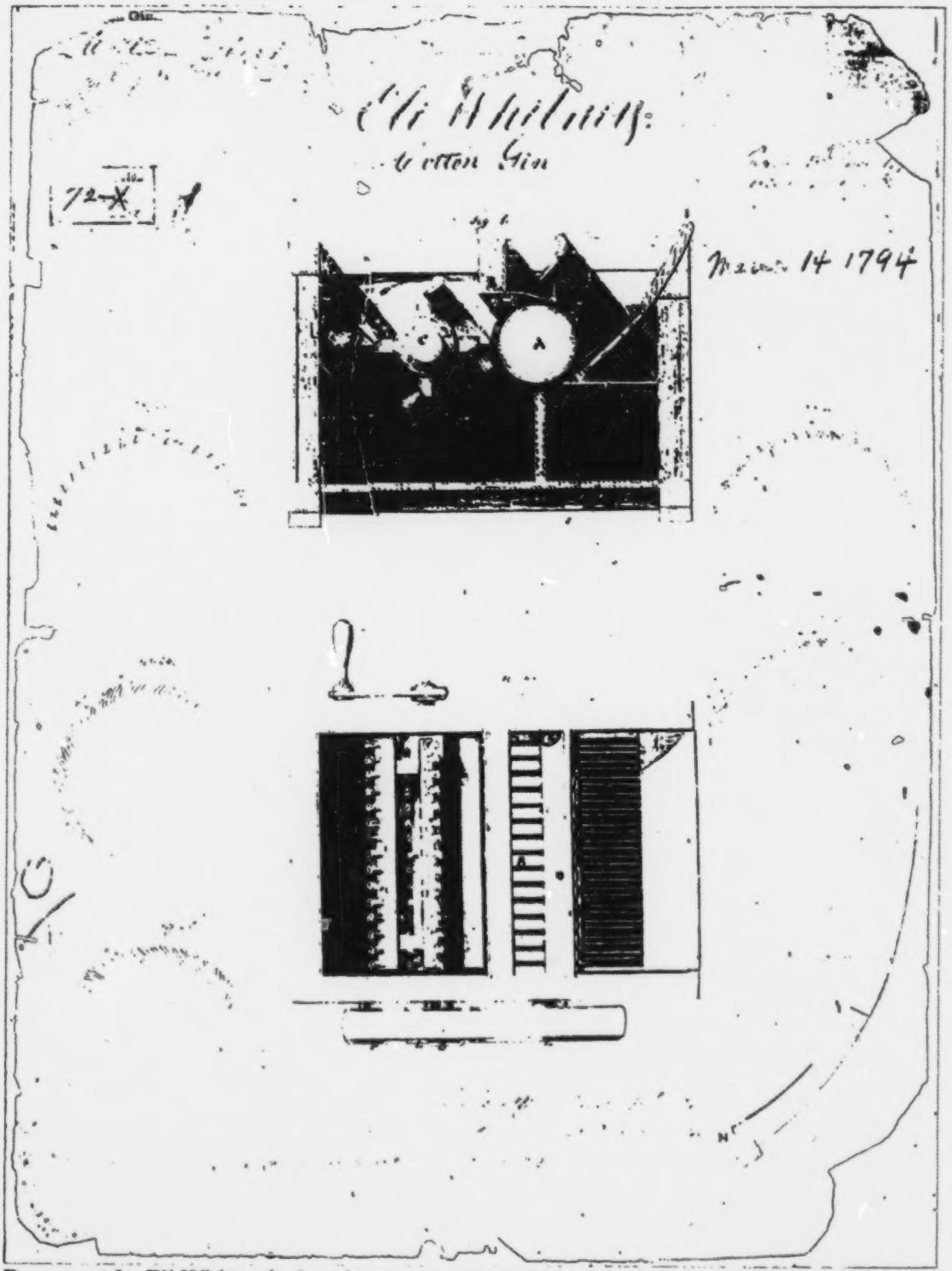

Document 2: Eli Whitney's drawing to accompany his original patent of the cotton gin.

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Written Document Analysis Worksheet

1. TYPE OF DOCUMENT (Check one):

___ Newspaper	___ Map	___ Advertisement
___ Letter	___ Telegram	___ Congressional record
___ Patent	___ Press release	___ Census report
___ Memorandum	___ Report	___ Other

2. UNIQUE PHYSICAL QUALITIES OF THE DOCUMENT (Check one or more):

___ Interesting letterhead	___ Notations
___ Handwritten	___ "RECEIVED" stamp
___ Typed	___ Other
___ Seals	

3. DATE(S) OF DOCUMENT: _____

4. AUTHOR (OR CREATOR) OF THE DOCUMENT: _____

POSITION (TITLE): _____

5. FOR WHAT AUDIENCE WAS THE DOCUMENT WRITTEN? _____

_____

6. DOCUMENT INFORMATION (There are many possible ways to answer A-E.)

A. List three things the author said that you think are important:

1. _____
2. _____
3. _____

B. Why do you think this document was written?

_____

_____

C. What evidence in the document helps you know why it was written? Quote from the document.

_____

_____

D. List two things the document tells you about life in the United States at the time it was written:

_____

_____

E. Write a question to the author that is left unanswered by the document:

_____

_____

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